

## Scientific Notation

2. Two of the following six numbers are written incorrectly. Circle them

a)  $3.57 \times 10^{-8}$  b)  $4.23 \times 10^{-2}$  c)  $75.3 \times 10^3$  d)  $0.00045 \times 10^{-3}$  e)  $9.1 \times 10^4$

Rewrite them using proper notation:

3. Write the following numbers in scientific notation:

a) 25,310,000,000,000,000 =

b) 0.000000003018 =

4. Write the following numbers in regular (expanded, standard, etc) notation:

a)  $8.41 \times 10^{-7}$  =

b)  $3.215 \times 10^8$  =

When you MULTIPLY two numbers in scientific notation, you must ADD their exponents.

$$(4.5 \times 10^{12}) \times (3.2 \times 10^{36}) = (4.5)(3.2) \times 10^{12+36} = 14.4 \times 10^{48} \rightarrow 1.44 \times 10^{49}$$

$$(5.9 \times 10^9) \times (6.3 \times 10^{-5}) = (5.9)(6.3) \times 10^{9+(-5)} = 37.17 \times 10^4 \rightarrow 3.717 \times 10^5$$

When you DIVIDE two numbers, SUBTRACT denominator's exponent from the numerator's exponent.

$$\frac{2.8 \times 10^{14}}{3.2 \times 10^7} = \frac{2.8}{3.2} \times 10^{14-7} = 0.875 \times 10^7 = 8.75 \times 10^6$$

8. Solve the following problems.

a)  $(4.6 \times 10^{34})(7.9 \times 10^{-21}) =$   $\quad \times 10^{13} =$

b)  $(9.24 \times 10^{12})(3.31 \times 10^{20}) =$

9. Solve the following problems.

a)  $(14.6 \times 10^8)/(2.3 \times 10^3) =$

b)  $(4.2 \times 10^8)/(2.3 \times 10^{12}) =$

10. Solve the following problems.

$$4.25 \times 10^{13} + 2.10 \times 10^{14} = .425 \times 10^{14} + 2.10 \times 10^{14} =$$

$$6.4 \times 10^{-18} - 3 \times 10^{-19} = 6.4 \times 10^{-18} - \quad \times 10^{-18} =$$

$$3.1 \times 10^{-34} + 2.2 \times 10^{-33} = \quad \times 10^{-33} + 2.2 \times 10^{-33} =$$

$$8.25 \times 10^{12} + 4.4 \times 10^{11} = \quad \times 10^{\quad} + \quad \times 10^{\quad} =$$